

Claims

What is claimed is:

546
a1
*
Schmitt

1. A tag for use in [a system for monitoring the presence of an individual within a defined area] said system including attachment means for attaching the tag to the individual, receiving means positioned within said defined area for receiving identification signals generated by said tag, and processing means coupled to said receiving means for noting the time of receipt of the received identification signals, from which time information a determination can be made as to the presence or absence of the individual within the defined area during any given time period, said tag comprising:

a first power source,

sensing means for sensing prescribed conditions associated with the operation and use of said tag, and detection, etc.

means coupled to said first power source for transmitting an identification signal, said identification signal including identification information that uniquely identifies said tag, and hence the individual to whom the tag is attached, and status information that indicates the prescribed conditions sensed by said sensing means.

2. The tag of claim 1 wherein the prescribed conditions sensed by said sensing means include whether the tag has remained attached to the individual.

*
3. The monitoring system of claim 1, wherein said sensing means comprises

means for holding the tag near the skin or flesh of the individual; and

first circuit means for sensing the presence or absence of said skin or flesh near said tag.

4. The monitoring system of claim 3 wherein said holding means comprises a conductive strap attached to said tag that fits around a limb of said individual and holds the tag against said limb.

5. The monitoring system of claim 4 wherein said sensing means further comprises second circuit means for sensing the continuity of said conductive strap, whereby the cutting or breaking of said strap can be sensed.

6. The monitoring system of claim 3 wherein said first circuit means comprises means for sensing a change in the coupling capacitance present between a surface of the tag and the skin or flesh of the individual.

7. A tag for use with an individual monitoring system comprising

a self-contained power source;

circuit means coupled to said power source for periodically generating an encoded signal, said encoded signal including identification information and status information; and

sensing means for sensing when said tag is held near human flesh;

~~said status information including an indication~~

~~of whether said tag is being held near human flesh.~~

8. The tag of claim 7 further including mode control means for allowing the circuit means of said tag to selectively operate in one of a plurality of operating modes.

9. The tag of claim 8 wherein said mode control means includes switch means responsive to the application of an external force, and wherein said operating modes include:

an off mode, wherein no external force has yet been applied, and the circuit means of said tag is disabled, thereby conserving the energy of said self-contained power source;

a start-up/test mode, initiated by applying and maintaining said external force, during which said circuit means is enabled and operates in a test mode that allows operation of the tag to be verified; and

a normal run mode, initiated upon removal of the external force, during which said circuit means generates said encoded signal at prescribed intervals.

a. 10. The tag of claim 7 wherein said operating modes further include:

p. 25 in spec.
a CW mode, initiated by reapplying and maintaining said external force, during which said encoded signal is not generated, but during which a noncoded continuous RF signal is generated.

a 11. The tag of claim 7 wherein said external force comprises a magnetic force.

a 12. The tag of claim 7 wherein said sensing means for sensing when said tag is held near human flesh comprises means for sensing ^{capacitance} a change in the capacitance between spaced-apart electrodes or conductors mounted in said tag, said electrodes being placed near the skin of a person who is to carry said tag, the flesh of the person thereby comprising a portion of the dielectric material between said spaced-apart electrodes, the absence of said dielectric material, as occurs when the tag is removed from the skin of the person, thereby affecting the capacitance that exists between said spaced-apart electrodes.

13. The tag of claim 12 wherein the presence of skin or flesh near said spaced-apart electrodes causes a capacitance value to be present that couples a signal between said electrodes, and wherein the absence of skin or flesh near said spaced-apart electrodes causes a change in said capacitance value that prevents said signal from being coupled between said electrodes, the absence of said signal being used to indicate that the tag is no longer being held against human flesh.

14. The tag of claim 12 wherein one of said spaced-apart electrodes comprises a plate mounted in a surface of said tag and the other of said electrodes comprises a conductive element in a strap used to hold said tag near the flesh of the individual.

15. The tag of claim 14 wherein said strap,

including the conductive element therein, is realized from
conductive ~~rubber~~ MATERIAL. ^{or 4-4-86} ~~20P 4-4-86~~

16. The tag of claim 7 wherein said sensing means for sensing when said tag is held against human flesh includes a strap connected to said tag, which strap wraps around a limb, such as a leg or an arm, of the person carrying the tag, and wherein strap-breaking detection means are provided to detect if said strap is broken, opened, or otherwise removed from said tag.

17. The tag of claim 7 wherein said circuit means comprises

Schultz? (col. 3)
a low power oscillator for generating a repetitive ~~repetative~~ clock pulse;

counting circuitry responsive to said clock pulse for generating timing signals;

encoding circuitry responsive to said timing signals for generating said encoded signal based on a preset identification code and said sensing means; and

RF transmitting means for generating and transmitting an RF signal modulated by said encoded signal at prescribed intervals as controlled by said timing signals.

18. The tag of claim 17 wherein said RF transmitting means includes a crystal controlled oscillator for controlling the frequency of said RF transmitting means, whereby the RF signal generated has a stable frequency associated therewith.